

# Impact of Technological Advancements on Performance in Huawei

<sup>1</sup> Mohd Shukri Ab Yajid\*, <sup>1</sup>Sakinahmohdshukri, <sup>1</sup>IA Ariffin

<sup>1</sup>Management and Science University

\*Corresponding author: [shukri@msu.edu.my](mailto:shukri@msu.edu.my)

## ABSTRACT

The purpose associated with the literature is to examine the role of strategies and technologies that adopted by the Huawei in their success. The secondary purpose of the present study is to examine the impact to technology on the performance. The data has been gathered by using questionnaires from the employees of Huawei is China's that is the largest telecom vendor. The results revealed that positive linkage among the technology adoption and performance of the firm. Indeed the findings of this study show support for profiling theory as a means of minimizing unnecessary turnover of employees. These findings are provided the guidelines to the policymakers and regulation implementation authorities that they develop and implement effective policies related to the technology adoption to enhance firm performance.

**Keywords:** firm performance, technologies, Huawei

## Correspondence:

Mohd Shukri Ab Yajid  
Management and Science University  
Corresponding author: [shukri@msu.edu.my](mailto:shukri@msu.edu.my)

## INTRODUCTION

One of the key principles of Huawei is to contribute to the local and global society. Huawei stand for promoting corporate responsibility, and strive to advance socially minded practices. Huawei was the first Chinese to donate to the devastating tsunami of December 26, 2004. Huawei quickly set up tsunami rescue teams to restore communications infrastructure in badly-hit countries such as Indonesia, Thailand, Sri Lanka, and India. In total, Huawei donated RMB20 million in emergency telecom equipment, as well as additional RMB20 million in cash from the company and staff. Earlier in August of 1998, China was hit by an unprecedented flood. In response, Huawei donated remote wireless access equipment worth RMB5 million for emergency rescue, shipped the equipment at top speed, installed and commissioned the equipment within 18 hours, and maintained a 24-hours communication service. Huawei also donated RMB25 million worth of wireless access emergency equipment as well as RMB15 million in cash from the company and staff to rebuild schools (Fan, 2011).

Additionally, Huawei also built five Hope Schools in needy areas of Shaanxi and Gansu Province. Huawei has donated RMB25 million to China's Ministry of Education to create a "Huawei Education Fund" to help poor children complete an undergraduate education. Huawei is a United Nations-sponsored Global Compact member promoting ten principles on human rights, civil rights, environmental security and anti-corruption issues. Huawei has actively incorporated these principles into its corporate culture and practices to support global development goals. The Digital Synchronous Network (DSN) is the largest telecom-medicine support network, just like a body's sphygm. With the rapid increase in nature and quantity of services and customers, building the transmission backbone on an SDH transmission network has become a new vogue, but without the high performance and high stability DSN, the efficiency of certain essential services and the promise of the immense

power in SDH cannot be completely exploited. CDMA will also urgently need perfect clock system for future proof INs in the coming years and therefore it is very important to create a new DSN as soon as possible (Hawes & Chew, 2011).

To provide various high-performance services such as smart networks, mobile communications networks, ISDNs, etc., the first task is to develop the CCS7 Signaling Network, one of the three communications support networks. The Signaling Network consists of Signaling points (varied exchanges and special service centers), Signaling transfer points, and Signaling connections. By building on its achievements in switching technology, software engineering, chip design, Huawei developed its own Signaling Point System (C&C08 STP), and many others.

Network infrastructure and technology alone no longer determine the ultimate success of its business in the telecom environment. For telecom operators, the key to entrench itself in a competitive market lies in its capability to provide the right services at the right time. Turning ideas into successful services requires a brand new approach to the industry, an approach in which "add-ons" become absolute essentials. Starting from 1993 its R&D efforts in the field of value-added service platforms, Huawei is committed to delivering complete solutions including voice and data services, such as Intelligent Network and Mobile Data Service Delivery Platform, which help the telecom operators generate revenues and entrench their market core competitiveness. Huawei has an R & D team of around 1,000 persons engaged in the OSS&BSS field. The solutions include Billing, CRM, Call Center, Unified Network Management and Broadband / Narrowband Monitoring, which cover other areas such as OSS which BSS. The call center software serves nearly 0.3 billion consumers and holds more than 50 percent of China's market shares; 3 G Billing was successfully applied in Hong Kong Sunday; the Billing system was widely applied by operators in 10-odd

countries. Advanced technologies, 3 G orientation, global applications, and sustainable development are the goal for which Huawei OSS&BSS has sought. Huawei OSS&BSS was highly capable of delivering full-service and end-to-end solutions after years of effort. In the meantime, Huawei has been involved in the integration and service consultation of OSS&BSS systems and has cooperated extensively with world-famous consulting firms, integration firms and product providers (Hussain, Mosa & Omran, 2017).

Huawei has developed a wide range of distribution frame products to meet the needs of rapid growth and large network expansion. The top honor was bestowed on Huawei's U626 mobile phone with global warmth among businesspeople about China's dismal intellectual property record (Hussain, Mosa & Omran, 2018). Huawei forged joint ventures with Siemens and 3Com over the last year. Exports doubled to \$1 billion in 2003, as its customer base grew to 40 countries. Huawei Technologies Co. Ltd. dedicates itself exclusively to developing overall solutions with a variety of its products for telecom network operators.

Flexible and advanced training methods have been utilized in Huawei's customer training. The training environment supports all types of training methods including classroom lecture, multimedia training, computer-based training, web-based training, hands-on exercises with equipment and on-site training. More than half the class time is spent in lab activities in the lab-based training programs. As expected, the hands-on practice is the most beneficial part of the learning experience (Hussain, Musa, & Omran, 2019).

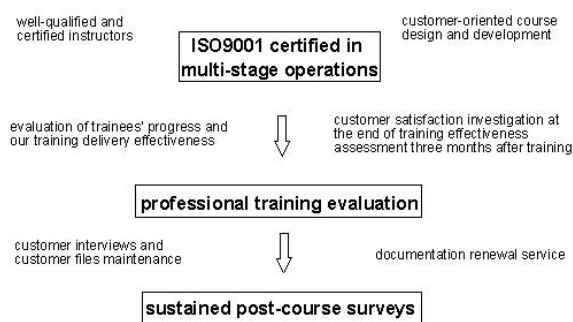


Figure 1: Quality Standards.

Huawei training views the training curriculum as a commodity in its pursuit of the goal of "cultivating operational skills and increasing returns on investment" for our customers. The commodity is designed and developed by professionals, based on market analysis and a thorough understanding of the expectations of our customers. We follow a process of designing performance-based instructional systems to ensure that our training solutions meet ISO-9001 requirements and principles of adult learning. Continued evaluations of the effectiveness of training are conducted during or after the implementation of the training to verify the quality and vitality of our training. Taking into account the needs and features of customers of Huawei's products, Huawei uses modular curriculum design as a technique with a focus on tangible goal and correct training series, length and scale. For the most optimal linear and didactic series these course modules are ordered. To date over 100 training programs have been delivered covering Huawei's products and technologies.

Huawei has developed a three-level training program composed of training at our facilities, local training and customer-side on-site training, taking into account the varied customer demands. Training on site is carried out during implementation of the project or during operation and maintenance of the equipment. It features the content practicability and a high degree of problem-solving orientation. Local training refers to the training delivered at a location deemed convenient and economical by the customer when a large number of the customer's employees require training. Such training aims at providing the trainees with the most pertinent information and problem-solving techniques. The training conducted at our facilities is characterized by a systematic approach and deeper learning. The trainees, hereby, are able not only to master the highlight points in the training program or course, but also to grow in their competence so as to perform their roles well. In order to meet increased customer demands for training in a timely and economical manner, Huawei has authorized some Education Centers in domestic cities, namely Beijing, Shanghai, Guangzhou, Nanjing, Kunming and Jinan, as well as Moscow, St. Paul, Cairo and Zimbabwe in the world. The training conducted at these Authorized Education Centers, both at home and abroad, is patterned after the training offered at our headquarters, utilizing Huawei-developed training materials, taught by Huawei Authorized Instructors, featuring high standards of measure to ensure training quality (Hussain, Musa, & Omran, 2018).

#### LITERATURE REVIEW

Serving its customers is the only reason Huawei exists. Its development is motivated by the demands of its customers. Since 1999, by grasping the opportunity of continuous construction and network transformation in the While customers' network construction is being realigned and market competition is becoming more severe, Huawei have stuck to its marketing strategy of "being centered on the market and focused on customers" (Joo, Oh, & Lee, 2016). By providing pertinent solutions that deliver more added value and strong support to its customers, Huawei set up long-term win-win relationships. All this has helped us develop stable and efficient marketing methods and patterns in the face of severe international competition. Chinese telecom market, Customer focus and high-performance corporate culture Huawei adheres to the service cultures of "customer first" and "good faith," and stands close to its customers. This further fulfills long-term win-win situations with clients. Huawei has established a professional service team characterized by dedication and service awareness, established an integrated service platform that is relatively consummate, and developed professional maintenance and training capabilities for engineers. In the international markets Huawei has also developed differentiated service advantages. Through a win-win approach, Huawei collaborates with its clients, suppliers and market leading players to challenge the future. Throughout today's market climate, working jointly through collaboration is a phenomenon among industry peers. Huawei is conducting a broader scope of the open-door cooperation. At the one hand, Huawei is developing more secure relationships with consumers and suppliers, enhancing strategic collaboration with traditional foreign and domestic operators, increasing its role in key markets across the globe, enhancing partnerships with key

suppliers, and improving the supply chain's response time and service advantages (Liu, Zheng, & Wei, 2012).

Huawei completed business acquisition with Avansys and sold the Huawei supply services at a price of USD 750 million so the company could concentrate on core telecommunications services. Huawei introduced a wide and favorable pattern of cooperation around the globe in the IT winter. The joint venture strengthened Huawei's global brand image, gained capital operating expertise, recruited employees, and introduced a new trend of international cooperation for the company.

Independently developed chips are up to 11 million, which significantly reduces the system cost. telecom network, IP DSLAM, intelligent networks, and signaling networks, and rank among the leading players in the fields such as intelligent optical network ASON, core backbone routers, switches, UMTS, CDMA and 3G terminal. Huawei also have invested heavily in its ASIC chips. Up till now, Huawei have designed nearly 100 types of ASIC chips, including 3G core chips. The design of the chip has been enhanced from 0.5 micron to 0.13 micron. Chinese telecoms manufacturer, Huawei Technologies, is often disparaged as a copier of western companies' technologies but is being tipped to be a major new global competitor by Karl Deutsch, vice president of AT Kearney and leader of its Global Communications and High Technology Practice.

According to Deutsch, Huawei is "in a very good position to compete globally and that is what they are now starting to do. They have a huge home market, very low labor costs and very low R&D costs". Huawei Technologies recorded 68 percent growth in international sales from \$US328 million in 2001 to \$US552 million in 2002, mostly from sales in Africa and Asia. According to the company's website, Huawei's international market now accounts for 20 per cent of its total sales revenue of US\$ 2.7 billion. Actually 32 countries are using Huawei routers. In December 2002, during ITU Telecom Asia, Huawei announced that its complete series of routers would start rapidly entering the European market in 2003 through its UK distribution arm. The company claims that 46% of its 22,000 employees are engaged in R&D and that it invests not less than 10% of its revenues in R&D. However this disparity between employee percentage and revenue percentage dedicated to R&D would back up Deutsch's claim that Huawei's R&D costs are very low. Deutsch acknowledged that Huawei's R&D was "not true R&D just copying with people who do not cost a lot," but pointed out that this was exactly how Japanese manufacturers had started to compete globally in the 70s and 80s.

"Huawei started off in developing countries, like Kenya then Brazil and Eastern Europe and now they have started to penetrate the Western European countries. There is one large European operator testing one of Huawei's products. They really gave it a hard time, but the product was very good and matched their requirement. So one has to ask what is going to happen to other equipment manufacturers." Deutsch observed, "It's like the global automotive industry in the seventies and eighties when the Japanese started to penetrate Europe and the US with lower cost products and then started to work their way up." Although Huawei may be disparaged as a copier rather than an innovator, Nokia announced this week that it had entered into "an agreement on cross-licensing of WCDMA related patents covering the manufacturing and sales of WCDMA infrastructure equipment globally"(Muhammad Atif Nawaz, Afzal, &

Shehzadi, 2013). No details were provided. Deutsch suggested that the private Huawei would be a good choice for investors if it were stock exchange listed, but added that the prospects of the big Western manufacturers look positive in the medium term, too. "Companies like Lucent and Siemens have cut so many people and costs that they will have highly utilized capacities as soon as the market rebounds slightly, and they will make money. So they may be worth investing in for the next three to five years."

Huawei, meanwhile has entered the cellular handset market, to the surprise of many observers. A company spokesman told Reuters "We will focus on third-generation phones, as we've had a 3G research joint venture since last year, but we will not rule out the possibility of GSM and CDMA handsets." According to Reuters, Huawei owns about six percent of a joint venture with Japan's NEC and Matsushita to develop software for 3G mobile phones. However, according to Deutsch, prospects in the Chinese handset market are far from bright. "The mobile business in China is not growing at the same rate, competition is fierce and the subscribers being signed up are no longer profitable. They use the handset as a pager. They use the calling line ID to see who called and then call back on a fixed line. We talked to the manufacturers in China and they are really desperate. One of them told us that utilization of their manufacturing capacity went down from 70 percent to 40 percent within a month, and they cannot see how it will pick up again.

Human resource management is directly linked to the organization's overall efficiency. Most organizational processes may be related to the definition and preparation for training. The level of intensive activity in local government and most organizations is continuing. Many administrators and team members are hard at work on a variety of tasks. However, if spent in a vacuum, energy may be wasted. When each operation is viewed as this may lose its intended impact on the company by a separate action. Organizations pursue a number of significant programs. This may involve improvements to infrastructure, production systems, manufacturing problems and the like. Such interventions are significant, but they must be linked to an overarching concept that ties them together. Success is the underlying foundation of many programs and initiatives in the area of organization and human resources.

Full quality control, benchmarking, re-engineering and switching to teams of self-management are all performance-related. Quality is all involved with human resource management, preparation, performance management (including performance evaluation and compensation administration), recruiting and selection, and employee relations activities. Each contributes greatly. These programs are also called independent programmes. We sometimes crash, because they are. When companies lose sight of the simple aim of enhancing efficiency, when they view such or other projects as the ends rather than the means, then they are doomed to tough times, if not to complete failure. All practices should be seen as complementary rather than separate, with clearly defined underlying concepts and vision (Yusheng, 2013).

The first step towards a stable organization is to keep all activities and strategies aligned within an improved performance system. It means that any operation complements the others that occur concurrently. The interaction between internal and external influences is also important. The second step is to achieve the best

outcome for each operation within the performance system. Improvements and improvements can be made in all fields, including conventional ones such as teaching: The teaching need scene offers a variety and scope of training needs. To be at the level of best practice, companies should plan and organize the preparation required to meet all of the needs identified in priority order. All personnel involved in the training should be professional and effective. All preparation will dovetail in its attempts to enhance results.

If every field is tackled, the training effort is at an optimal point. The resemblance of the two examples clearly shows the importance of instruction in performance management. Education is a significant pillar for success. The typical HR field is recruitment / selection. The best recruitment / selection procedures imaginable will be in place. Applicants of high quality should be drawn to their roles. The requirements / competencies of the individual and the position, including the correct balance, should be clearly defined. A variety of selection methods should be used which are suitable to the situation. Selection decisions should be bias-free and not biased. Those are only a few of the metrics that require attention. The most recent research needs to reflect the methods used. The staff concerned need to have high-level recruitment / selection skills, and most importantly practice them. The third and final typical area to highlight is compensation management after training and recruitment / selection.

A whole host of various wage and compensation systems have culminated in certain organizations. There are possibilities for putting these different frameworks into a new structure that can solve the challenges of the past. Staff must have faith in the administration of wages program. We want equal and equitable distribution of the recompenses. Dissatisfaction can cause serious problems with morale and efficiency. Some wise councils can create an enhanced compensation management system that is explicitly designed to meet local requirements. A simple framework that overcomes the challenges of the past can be created, but it is clear enough for all within the company to understand it. This can be related to a radically new approach to performance management, including methods for effective performance evaluation. Companies have several strategies for improvement in place at any time. Anyone will connect (Zhang, Rao, & Feng, 2018).

A unified approach recognized by the employees leads to confidence. Chinese Telecom operators are focusing their efforts on speech. Data revenues account for just 5 per cent. Different systems for delivering differentiated services are being introduced. Chinese operators also lack the know-how to build new technology and are cautious in purchasing cutting-edge technologies. Mobile communication, especially GSM (Global Mobile System) is the most lucrative sub-sector and accounts for 46 per cent of total revenues. Three technologies are important for third generation (3 G).

'Xiaolingtong' is a restricted mobility service based on PAS / PHS (Personal Access System / Personal Handy Phone System) technology, halfway between mobile and fixed. This consists of a local wireless loop providing access to the fixed-line network. With over 50 million subscribers, PAS / PHS is competing with conventional telecom providers in big cities head to head as rates are typically four times lower. Telecom providers are predominantly Chinese: two officially licensed fixed-line providers, China Telecom and China Netcom, two mobile operators, China Mobile (GSM) and China Unicom (GSM

and CDMA), and two minor operators, China Satcom and China Railcom. The State has custody of all of them and overall possession. In fact, the bulk of these are sponsored in Hong Kong (HK). For years China Telecom, Netcom, Mobile have been placing pressure on the government to receive 3 G licenses. It is very likely that they will succeed but there is no time.

In addition to the less developed North, China Telecom operates primarily in the affluent Southern Provinces (including Shanghai and Canton). It operates fixed-line networks at home and abroad, and offers voice, data, video, multimedia and information services on fixed-line. Through implementing PAS / PHS very successfully it compensates for the absence of a mobile warrant. A second focal point is Ethernet and ADSL-based broadband. China Telecom is listed at stock exchanges in HK and New York (NY). China Netcom practically operates in the Northern provinces.

## METHODS

This research relies entirely on primary data collected in the form of a single page self-directed survey distributed using conventional methods of collection as well as being collected in electronic format via the Internet. It is a cross-sectional analysis that aims to collect responses from different demographic categories of Huawei employees. All survey responses were tabled and loaded into spreadsheet and database programs separately such records were cross-referenced in order to detect and remove structural flaws in reporting. Upon cross checking all records were then again audited to ensure correct documentation of the collected data and to remove the risk of analytical errors arising from this form of system failure.

It is important to remember that random sampling methods could not be used due to time- and budget constraints. For this study, the non-respondents were not accounted for the same reasons. The survey itself is meant to be highly organized and autonomous. It was seen as the strongest way of obtaining and capturing respondents' truthful perceptions. In addition, statements that appeared on the survey were meant to take an extreme position to which the respondent would respond. The researcher aspired to minimize the influence of respondents who otherwise could take the extreme position themselves and distort the scoring of their individual perceptions relative to each other.

All answers were collected with the goal of giving the respondents full anonymity. This was an easy way of using the survey paper type. However, the survey's electronic form relied on e-mail to provide the researcher with responses. Electronic responses were registered on paper forms to preserve the study's anonymous existence for certain individuals. Answer transcriptions have been checked for accuracy. The original e-mail was then deleted in order to protect the respondent's privacy.

## ANALYSIS

The researcher first grouped all surveys in evaluating the survey results based on how each respondent reacted to the argument, "I will be with this company in three years." More Real, respondents who scored either 4 or 5, formed one group (group 4/5). Scoring 1 or 2, Less Real, became a second (group 1/2). Finally surveys scoring 3 were grouped into a third group (3 group) of study. A description of the data obtained appears for the three classes of analyzes. That survey statement was analyzed and percentiles of response for each category were

determined. The five statements most frequently replied as being either truer or less true in each category, segregated from the total answer.

#### SWOT ANALYSIS

Based on the Huawei annual report 2004 as well as on other material, the following strengths, weaknesses, opportunities and threats (SWOT) were identified by the authors of this case:

##### Strengths

- Customer-friendly GUI
- Quality of the hardware allows new clients to subscribe to the service automatically and on their own
- Localization process (support for European languages)
- Support two standards
- Quality of service support Institutional
- Membership in industry associations
- The relatively low cost of product development in China in comparison to Western countries
- The Chinese educational system

##### Weaknesses

- Reliance on only one technology
- Certain technical bottlenecks
- No possibility to track the presence of users on-line
- The Russian government's support for the IT industry is insufficient
- Imperfect legislation (e.g. property right protection)
- Underdeveloped capital market

##### Opportunities

- Venture capital investment
- Alliances with other market players
- Improved support from the China government to the IT industry

##### Threats

- Changes in legislation concerning the utilization of key technologies
- Emergence of competing technologies and standards
- The alliances of competitors with potential customers

#### DISCUSSIONS AND CONCLUSIONS

Most shocking in this analysis was the fact that most of those who showed the greatest urge to leave Huawei were people who control or oversee others? In this category, respondents were least likely to believe they are working for a great organization. Others suggested that it was less likely that Huawei would have a strong goal and optimistic values. There are variables that the company maintains significant influence over. Some of this category of respondents thought they should gain more elsewhere. They also found it less fair that there was room in the company for them to expand. There was the least likely a person in this category to feel that their work matched their best abilities. When reading these answers, it becomes apparent that people fall into this category of study. Many of those in this category are focused on satisfying their higher-order personal needs. Clearly this group had the most subdued, unenthusiastic responses. This study confirms that the longer an individual is with Huawei, the higher the probability they will want to stay with him. The number of years with the Huawei dropped from the highest performing analytical category to the lowest in order. This attribute of each category will explain why respondents choose to continue with Huawei in the long term. It stands to reason that the longer someone is in their position with a company the more competent they are likely to be in. That alone could encourage people to concentrate more on personal needs than economic ones. It would seem to be in the best interests of both employee and employer to

push down the time needed for a worker to feel the most confident in their work.

The researcher found it most disturbing that almost 3/4 of respondents thought they wanted the benefits Huawei offered to them. This argument received an almost wild reaction from the respondents. Just about twenty percent of the people said that was less true for them. It should be researched extensively why this particular perception does occur. This is especially the case in the small business environment where a company does not have the resources needed to offer to current or prospective workers a comprehensive benefits package. It is also quite worrying because it relates to people's feeling of dependency on benefits. By these answers it would appear that benefits like medical care are far beyond most employees' control. It has great potential to hurt employers as the group with the highest rating on the argument "I need the benefits" was also the group most likely to show a willingness to continue with the organization. A modification or decrease in compensation can have a profound impact on certain workers' expectations. The cost effects of this are alarming. After considering the twenty dimensions of the workplace explored in this research report, it is reasonable to assume that even altering some of the expectations of an employee may help to increase the motivation to remain with the organization. Managers and managers are sufficiently trained to understand each individual's profile, combined with training on how to turn around attitudes that the company manages can dramatically boost retention efforts. It is highly doubtful that a former employee will accurately complete the survey their current employer used for this study. However, recognizing the dimensions that drive retention, Huawei will build strategies to help each manager collect this essential piece of information when there is still time to interfere positively.

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